

Kinoform Focusing Optics for Macromolecular Crystallography

K. Evans-Lutterodt
NSLS, BNL

Focusing hard x-rays to beam sizes of order microns is of increasing interest for Macromolecular crystallography. I will discuss a variety of optics, that can help focus beams down to the desired micron sized beams, and the tradeoffs between the various optics. However, I will emphasize the benefits of the kinoform optic as a potential candidate to be used in beamline designs for macromolecular crystallography. Kinoform optics are phase preserving refractive optics that can have large physical apertures, low scattering tails and significant working distance. The importance of other issues such as the beam divergence, high brightness sources and brightness preserving beamlines will be discussed. Shown below is an example of a folded kinoform designed for sub micron spots, which has been measured to have a full width half maximum of $137 \pm 5 \text{ nm}$, close to the design value.

